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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
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Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No.	Applicant(s)
	10/543,013	TAKEMOTO ET AL.
	Examiner	Art Unit
	M'baya Diao	2809

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) Responsive to communication(s) filed on 22 July 2005.
- 2a) This action is FINAL. 2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) Claim(s) 1-10 & 12-21 is/are pending in the application.
 - 4a) Of the above claim(s) 11 is/are withdrawn from consideration.
- 5) Claim(s) _____ is/are allowed.
- 6) Claim(s) 1-10 and 12-21 is/are rejected.
- 7) Claim(s) _____ is/are objected to.
- 8) Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 22 July 2005 is/are: a) accepted or b) objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) All b) Some * c) None of:
 1. Certified copies of the priority documents have been received.
 2. Certified copies of the priority documents have been received in Application No. _____.
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>07/22/2005</u> . | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Claim Objections

1. Claim 13 is objected to because of the following informalities:

The word " into the case with covered" should read -- into the case covered-- (page 3, line 19).

Appropriate correction is required.

2. For examination purpose the word " into the case with covered" would read -- into the case covered--.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-7, 9 ,13,18-19, & 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Wiezorek et al., (Wiezorek) US PAT 6,265,840.**

5. As per claim 1, Wiezorek discloses (col. 3, lines 1-59; col. 4, lines 1-56) and shows in Figs. 1-8:

a capacitor unit (7) comprising: a capacitor module(7) (applicant's capacitor block)formed by fitting into recess (14, 23) a plurality of capacitors (7a-

7g;7a-7f,or7a-7e) into a second housing part (2) (applicant's holder)with the five capacitors (7a) to (7e) arranged in parallel next to one another in the manner shown in Fig. 6. Wiezorek also discloses (col. 4, lines 19-25) that the recess (23) is of semicircular design so as to matched the outer surface of the capacitor (7a) to (7e), and that the capacitor unit (7) is supplied with voltage via a connector pin (24) on the hybrid frame (34), thus meeting the limitation of, "a capacitor block formed by incorporating a plurality of capacitors into a holder with body portions of the capacitors sandwiched and electrically connecting the capacitors in series or in parallel";

a processor hybrid (8) (applicant's control circuit portion) which, depending on the process to be monitored produces control signals for a power output stage module (9) which generates the appropriate switching voltages and currents for the electric motor as requested, thus meeting the limitation of, "a control circuit portion including a charging and discharging circuit for charging or discharging the capacitor block";

a connector pin (25) (applicant's relay connector)via which the supply voltage is supplied to the power electronics (col. 4, lines 14-17), thus meeting the limitation of, "a relay connector for electrically connecting the capacitor block and the control circuit portion"; and

a housing part (2)(applicant's case)housing the capacitor block (7), the control circuit portion (8, 9) and the relay connector (24,25), wherein the control circuit portion comprising: a hybrid circuit (3) (applicant's circuit board); a power output stage module (9) (applicant's circuit component forming the charging and

discharging circuit); a cooling ribs (4,5) (applicant's heat radiator for suppressing heat generation of the circuit component in charging and discharging); a processor hybrid (8) (applicant's microcomputer for producing control signals for a power output module (9)), thus meeting the limitation of, "a microcomputer for detecting and controlling states of the charging and discharging circuit and the capacitor block"; and

a connector pin (25)connected to the power electronics (electric motor)(applicant's external load); and wherein the processor hybrid circuit(8)(applicant's control circuit portion) is on the housing part (2) (applicant's case)(col. 3, lines 12-18). Wiezorek further discloses (col. 3, lines 66-67;col. 4, lines 32-35) that two baffles plates (30), and (31) connect the individual capacitor elements 7a to 7g to the connectors elements (16) and (17) (Fig. 5), and that in Fig. 6, the capacitors are arranged in parallel next to one another to form two adjacent rows (28) and (29) whose two regions are isolated by two baffle plates (30), (31). In this arrangement, each baffle plate is of L-shaped design, and its limbs enclose a respective capacitor unit (28) or (29) approximately at right angles. In this case, the baffle plate (30) is connected to the supply voltage and the baffle plate (31) is connected to the ground of the appliance, thus meeting the limitation of, "the control circuit portion is incorporated into the case in a way in which the circuit board is housed in the case in an upright position with respect to the case".

Accordingly, claim 1 is anticipated.

6. As per claim 2, Wiezorek discloses (col. 3, lines 4-5) that the cooling ribs (4) (applicant's heat radiator) are formed on the outer surface of the second housing part (2) (applicant's case housing)(outer surface inherently is of opposite side than the interior side of the housing where the capacitor blocks are located), thus meeting the limitation of, "the control circuit portion is housed in the case in a way in which a surface on which the circuit component forming the charging and discharging circuit and the heat radiator are mounted is located opposite side to the capacitor block. "

Accordingly, claim 2 is also anticipated.

7. As per claim 3, Wiezorek discloses (col. 4, lines 49-51) and shows in Fig. 8, that the two housing parts are connected to one another by means of a screw or a rivet device (13) (rivet device or screws would inherently have holes and bosses), and since the cooling ribs (4) are on the outer surface of the housing part (2) they constitute an integral part of the housing, thus meeting the limitation of, "the heat radiator has a fixing hole, the case has a fixing boss corresponding to the hole formed on the heat radiator, and the hole and the boss are screwed to be fixed in the case."

Accordingly, claim 3 is anticipated.

8. As per claim 4, Wiezorek discloses (col. 4, lines 5-8) and shows in Fig. 8, that the respective lateral ends of the housing part (2) have a circumferentially arranged hybrid frame (34) whose outer side has the cable guide (11), in which the cable (12) is connected (Fig. 8). In this case, the connector elements (16) and (17), which extend on one side through the hybrid frame (34), are connected

to the power output stage (9) and to the processor hybrid (8) inside the housing (2). The first housing part (1) rests on the hybrid frame (34). In this case, the hybrid frame (34) is sealed off against the surroundings by means of a respective circumferential seal (26), (27), thus meeting the limitation of, "a concave hole capable of being fitted into a periphery of the fixing boss formed in the case is provided on a side of a case surface of the hole of the heat radiator".

Accordingly, claim 4 is anticipated.

9. As per claim 5, Wiezorek discloses (col. 3, lines 6-36) and shows in Figs. 2 – 3 & 6, a connector module (6) having a connector body (10) which has a recess (14) in which capacitors cells (7a) to (7f) are fitted. Wiezorek also discloses (col. 3, lines 23 –36; col. 4, lines 3-8) that the housing part (2) is designed as a hybrid circuit having the microprocessor circuit (8) and the power output stages (9). The respective lateral ends of the housing part (2) have a circumferentially arranged hybrid frame (34) whose outer side has the cable guide (11), in which the cable (12) is connected (Fig. 8), a cable guide would inherently be of circular shape, thus meeting the limitation of, "a periphery of the circuit board, which is fixed by the hole of the heat radiator and the fixing boss, is maintained in a free state in the case."

Accordingly, claim 5 is anticipated.

10. As per claims 6-7, the limitations of:

"the circuit component requiring heat radiation is pressure welded to the heat radiator with a pressure suitable for heat radiation"; and "the circuit component is pressure welded to the heat radiator by using an elasticity of a leaf spring

attached to the heat radiator" are considered product-by-process limitations. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F, 2d 659, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); see also MPEP 2113.

Accordingly, claims 6-7 are anticipated.

As per claim 13, Wiezorek discloses (col. 3, lines 2+; col. 4, lines 3-56) a capacitor unit (7), wherein: the microprocessor circuit (8) (applicant's control circuit portion) is incorporated into the housing part (2) (applicant's case) with a cover-like housing part (1) (applicant's cover shield case) which are divided into a housing part (1) (applicant's upper shield case) and a housing part (2) (applicant's lower shield case); the housing part (2)(applicant's lower shield case) has four holes by which the two housing parts (1) and (2) are connected to one another thru screw or rivet devices (col. 4, lines 49-51),one or more baffle plates (30 and 31) (applicant's fixing pieces, wherein each baffle plate is of L-shaped, thus meeting the limitation of," the lower shield case has one or more fixing pieces to be fixed to the case, the fixing piece being obtained by allowing a part of the lower shield case to rise"; the case ((1) or (2))inherently has a screw-fixing boss (13) at the position corresponding to the screw or rivet (applicant's fixing piece); a baffle plate (31) connected to ground terminal; and the baffle plate (31)

(applicant's ground terminal) and the housing part (2) (applicant's lower shield case) are together fastened with a screw or rivets devices (13) (applicant's fixing boss)since the two housing parts are connected to one another with a screw or rivet devices.

Accordingly claim 13 is anticipated.

As per claims 18-19, Wiezorek discloses (col. Lines 25-56) and shows in Fig. 7 a group of capacitors arranged in a manner to form two adjacent rows (28) and (29). These two regions (28), (29) are isolated by two baffle plates (30), (31). In this arrangement, each baffle plate is of L-shaped design (thus meeting the limitation of a piece being folded outwardly from the side surface), and its limbs enclose a respective capacitor unit (28) or (29) approximately at right angles. In this case, the baffle plate (30) is connected to the supply voltage and the baffle plate (31)is connected to the ground of the appliance, thus meeting the limitation of," the lower shield case or the upper shield case has a piece that is folded outwardly from the side surface, and the piece is led to the side surface of the case and connected to a ground of an external load through a ground connection".

Wiezorek further discloses (col. 4, lines 37-46) that the baffle plates (30), (31) are calked to the housing part (1) at the points (32) (rivets, which are taken to be applicant's fixing screw nut). As the section corresponding to line A-A shows, the two plates (30), (31), carrying different potentials, are connected via contact bridges (33) and then form the electrical connection to the capacitors (7a) to (7e) at the same time, said capacitors being fitted into these contact bridges (33) and

soldered, thus meeting the limitation of," an outer peripheral surface of the case is provided with a screw fixing nut for fixing a bracket to be attached to a fixed body; and the piece that is folded outwardly from the side surface of the lower shield case is fixed to the bracket together with the screw fixing nut of the case".

Accordingly, claims 18-19 are anticipated.

11. As per claim 21, Wiezorek discloses (col. 3, lines 34-37) and shows in Figs. 3 & 5 that the surface (18) formed opposite the connector inlet (15) then serves as a bonding surface for connecting the connector pin (17) to the electronics (8)(applicant's control circuit) and (9)(applicant's power output stage module).

Wiezorek shows in Fig. 5 the connector pin (17) being protruded from the connector module (6), which is a part of the housing parts (1) and (2) (applicant's case)and the connector inlet (150 (applicant's periphery is provided with a bonding surface (18) (applicant's protection wall). Wiezorek further discloses (col. 4, lines 8-11) that the connector elements (16) and (17), which extend (thus meeting the limitation of protruding from a part of the case) on one side through the hybrid frame (34), are connected to the power output stage (9) and to the processor hybrid (8) (applicant's control circuit) inside the housing.

Accordingly, claim 21 is anticipated

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2809

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

14. **Claims 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiezorek in view of Paul J. Selgin US PAT 2,834,922.**

15. As per claim 8, Wiezorek differs from the claimed invention because he does not specifically discloses that the spring (22) being of U-shaped, in which one end has a surface that is brought into contact with a rear surface of the heat radiator and another end has a pressure welding portion that allows the circuit component to be pressure welded to the heat radiator, and a center portion thereof is fixed to the heat radiator with a screw.

Selgin discloses (col. 2, lines 59-64; col. 3, lines 3+) and shows in Figs.1-2 & 5, a conductive spring (14) in a cellular electronic assembly serving the dual function of contacting a pin of electron tube (17)(Fig. 2), and providing the

necessary spring pressure to force the lower surface (applicant case housing) of cell (18) (applicant capacitor unit) firmly into engagement with terminals on the circuit. Selgin also discloses (col. 3, lines 14) and shows in Fig. 5, that the structure of conductive spring (14) is made of a suitable conductor and is suitably tempered so as to have the desired spring properties. In addition to the above described structure of the spring (14), it can readily be seen that it is shaped generally in the form of a U. The portion (28) of conductive spring (14) is positioned on the underside of spring-block (13), Fig. 2, and is adapted to provide the necessary pressure to force cell (18) into contact with the printed circuit. It will be noted at this point that portions (29) of the conductive spring (14) are freely accessible for testing the voltages at the pins of the electron tube without requiring disassembly of the circuit.

Selgin is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use a U-shaped spring.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wiezorek by using a spring of U-shaped, in which one end has a surface (24) that is brought into contact with a rear surface of the of the electron tube (17) and another portion (28) (applicant's other end) is positioned on the underside of spring block (13) and portion (29) (applicant's center portion) of the conductive spring (14) are freely accessible, for advantages such as providing free access for testing the voltages at the pins of the electron tube without requiring disassembly of the circuit and providing

necessary pressure to force cell (18) into contact with the printed circuit (col. 3, lines 27-34), as per the teachings of Selgin.

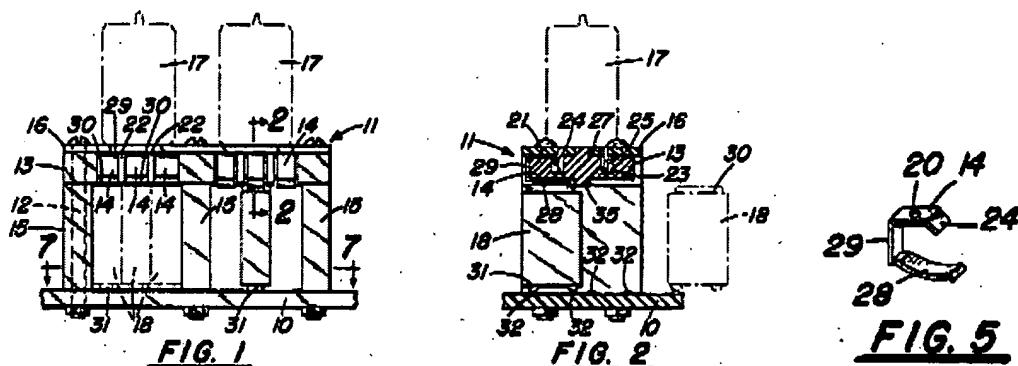
Accordingly claim 8 would have been obvious.

16. As per claim 9, Wiezorek discloses (col. 3, lines 46-67) that on the second housing part (2) (applicant's case housing), in which the hybrid circuit (3) is arranged on, there is a spring (22) (applicant's leaf spring) which presses the part of the connector body (10) which bears the capacitor (7) against the first housing part (1), meeting the limitation of, "the leaf spring has a guide portion for guiding a vertical direction of the circuit component so that the circuit component is not fallen in a right and left direction", and thus would have at least been obvious.

Accordingly, claim 9 would have been obvious..

As per claim 10, the limitation of the circuit component requiring heat radiation is pressure welded to the heat radiator via grease for promoting heat radiation, is considered as a product by process limitation. Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777F, 2d 659, 698, 227 USPQ 964, 966 (Fed. Cir. 1985); see also MPEP 2113.

Accordingly, claim 10 would have been obvious.



17. As per claim 12, Wiezorek discloses (col. 1, lines 55-58; col. 3, lines 46-49) and shows in Fig. 1 that on the second housing part (2) (which contains the hybrid circuit (3)), which forms the base, there is a spring (22) which presses the part of the connector body (10) which bears the capacitors (7) against the first housing part 1 (Fig. 1), would meet the limitation of, "a spring leaf is connected so that a plurality of the circuit components can be pressure welded", and thus would at least have been obvious.

Accordingly, claim 12 would have been obvious.

Claims 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wiezorek in view of Nakajima et al., (Nakajima) US PAT 5,796,579.

18. As per claim 14, Wiezorek differs from the claimed invention because he only discloses (col. 3, lines 6-9) a module (6) arranged between housing parts (1) (applicant's upper shield case) and (2) (applicant's lower shield case). Wiezorek differs from the claimed invention because he does not specifically disclose that the upper shield case has a guide surface positioned on an inside of a wall surface of the lower shield case and a guide surface positioned on an outside of

a wall surface of the lower shield case; and the upper shield case and the lower shield case are fitted into each other at the guide surface.

Nakajima discloses (col. 3, lines 10+) a portable electronic apparatus comprising a housing, a receptacle portion, an ejecting mechanism and a lock member. The housing includes a first side wall having a first surface (applicant's guide surface); and an insert slot and a second side wall having a second surface; and the second side wall continuous with first side wall. Nakajima further discloses (col. 3, lines 53+) that the portable electronic apparatus comprising a base unit, a printed circuit board, a holder and a plurality of functional components. The base unit including a lower housing and an upper housing detachably fixed to the lower housing, the upper housing having an upwardly projecting hollow ridge. The printed circuit board disposed in the lower housing. The holder disposed between the hollow ridge and the lower housing, and having an upper surface and a plurality of engaging pieces projecting from the upper surface.

Nakajima is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use the portable apparatus having housing that includes first and second side walls having respectively first and second surfaces.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wiezorek by including in the electronic device with the second housing part (2) a first side wall having a first surface

(applicant's guide surface); and an insert slot and a second side wall having a second surface; and the second side wall continuous with first side wall, for advantages such as providing a structure for supporting a plurality of printed circuit board without a special chassis (col. 2, lines 42-45) as per the teachings of Nakajima.

Accordingly, claim 14 would have been obvious.

As per claim 15, Wiezorek differs from the claimed invention because he does not specifically disclose that the first housing part (applicant's upper shield case) has a first guide surface and a second guide surface; the first guide surface and the second guide surface or both are processed to be deformed in the direction in which the first guide surface and the second guide surface become close to each other, thereby preventing looseness in fitting when they are fitted into the second housing part (applicant's lower shield case).

Nakajima discloses (col. 14, lines 29+) and shows in Fig. 11 that the first and second side walls (126a) and (126b) of the slider (118) are located between the front surface of the front upper housing (6) and guide rail (95a), and oppose each other. The first side wall (126) is located inside of the front surface of the front upper housing (6). The operation lever (112) is integrally formed in the front surface of the first side wall (126a) of the slider (118). The second side wall (126b) of the slider (118) has an integral guide bar (137). The guide bar (137) extends parallel to the side wall (126b). The edge of the guide bar (137) is slidably inserted to the guide slit (123) of the spring receiver (121). A coil spring

is disposed around the circumferential surface of the guide bar (137). The coil spring (138) is compressed between the second guide wall (126b) and the spring receiver (121). With this compression, the slider (118) is pressed toward the waiting position, and always held in the waiting position.

Nakajima is evidence that ordinary workers in the art would find a reason, suggestion or motivation to use the portable apparatus in which the upper housing has a first guide surface (135) and a second guide surface (137).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wiezorek by including in the electronic apparatus an upper housing shield that has a first guide surface and a second guide surface for advantages such as holding the slider in waiting position (col. 14, lines 49-51) as per the teachings of Nakajima.

Accordingly, claim 15 would have been obvious.

19. As per claim 16, Wiezorek discloses (col. 4, lines 49-51) and shows in Fig. 8, that the two housing parts (1) and (2) are connected to one another by means of a screw or a rivet device (13) (rivet device or screws would obviously have holes and bosses) and thus would at least have been obvious.

Accordingly, claim 16 would have been obvious.

20. As per claim 17, Wiezorek discloses (col. 3, lines 6-8, lines 55-57) and shows in Fig. 4, that the housing parts (1) and (2) have a connector module (6) arranged between them so as to produce a seal (applicant's shield case). The

capacitor module (7) is mechanically connected to the second housing part (2) via rivet connections (36). The connector unit (6) (applicant's shield case) is then locked mechanically on the second housing part 2 at the same time, and thus would have at least been obvious.

Accordingly claim 17 would have been obvious.

21. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wiezorek.

As per claim 20, Wiezorek discloses (col. 3, lines 19-36) and shows in Fig. 2-4 that the connector module (6) has a connector body (10), which has a recess (14) in it. As can be seen from Fig. 3, the connector body (10) is of integral design and has a connector inlet (15) into which the connector elements (16) and (17) project. The connector inlet (15) serves to hold the mating connector. To simplify illustration, only two connector elements (16), (17) are shown in this case. A multiplicity of such connector elements is also conceivable, however.

Wiezorek also discloses that (col. 3, lines 57-59) that the capacitor unit (7)(which is housed into the housing part (2)) also has a zener diode (35) arranged on it to limit voltage spikes (obviously will also limit the current), and this zener diode is also cooled, and thus would have at least been obvious.

Accordingly, claim 20 would have been obvious.

Conclusion

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22. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

23. Matsuoka et al., (Matsuoka) US PAT 6,233,930, discloses a power steering device.

24. Ito et al., (Ito) US PAT 4,325,103, discloses a provisional fixing structure of electronic tuner.

25. Ikeda et al., (Ikeda) US PAT 6,238,221, discloses a circuit connection structure for a junction block.

26. Takehara, US PAT 6,556,456, discloses a device for shielding electronic circuit for aircraft.

27. Hersom et al., (Hersom) US PAT 4,292,665, discloses an output stage for switching regulated power supply.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M'baye Diao whose telephone number is 571-272-9748. The examiner can normally be reached on M - TH from 8:00 am to 5:00 pm. The examiner can also be reached on alternate Friday at the same time.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tarifur Chowdhury, can be reached on M – F from 8:00 am to 5:00 pm at (571) 272-9819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information

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for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

M'baye Diao
Examiner
Art Unit 2809

M.D



THAO X. LE
PRIMARY PATENT EXAMINER